

Scaled data based on original data using  
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: HALO COMMERCIAL

Report Number: P775904

Luminaire Tested: HCDJBL510CSD-HCD8TSQH-HCD8TSQLWW-1000lm-5000K

Issue Date: 2/7/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P775904  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA ( A2312156B027)  
Test Lab:  
Issue Date: 2/7/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO COMMERCIAL  
Catalog Number: HCDJBL510CSD-HCD8TSQH-HCD8TSQLWW-1000lm-5000K  
Description: 8 INCH SQUARE MEDIUM LENSED WALLWASH KIT  
Light Source: SELECTABLE LUMENS AND CCT ARRAY 90CRI / 5000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 953.4 lumens  
Efficiency: N/A  
Efficacy: 95.3 lumens/watt  
Spacing Criteria (0/90/45): 1.18 / 1.2 / 1.3  
Luminous Opening: Rectangular (W 0.67' x L: 0.67' x H: 0')  
CIE Type: Direct

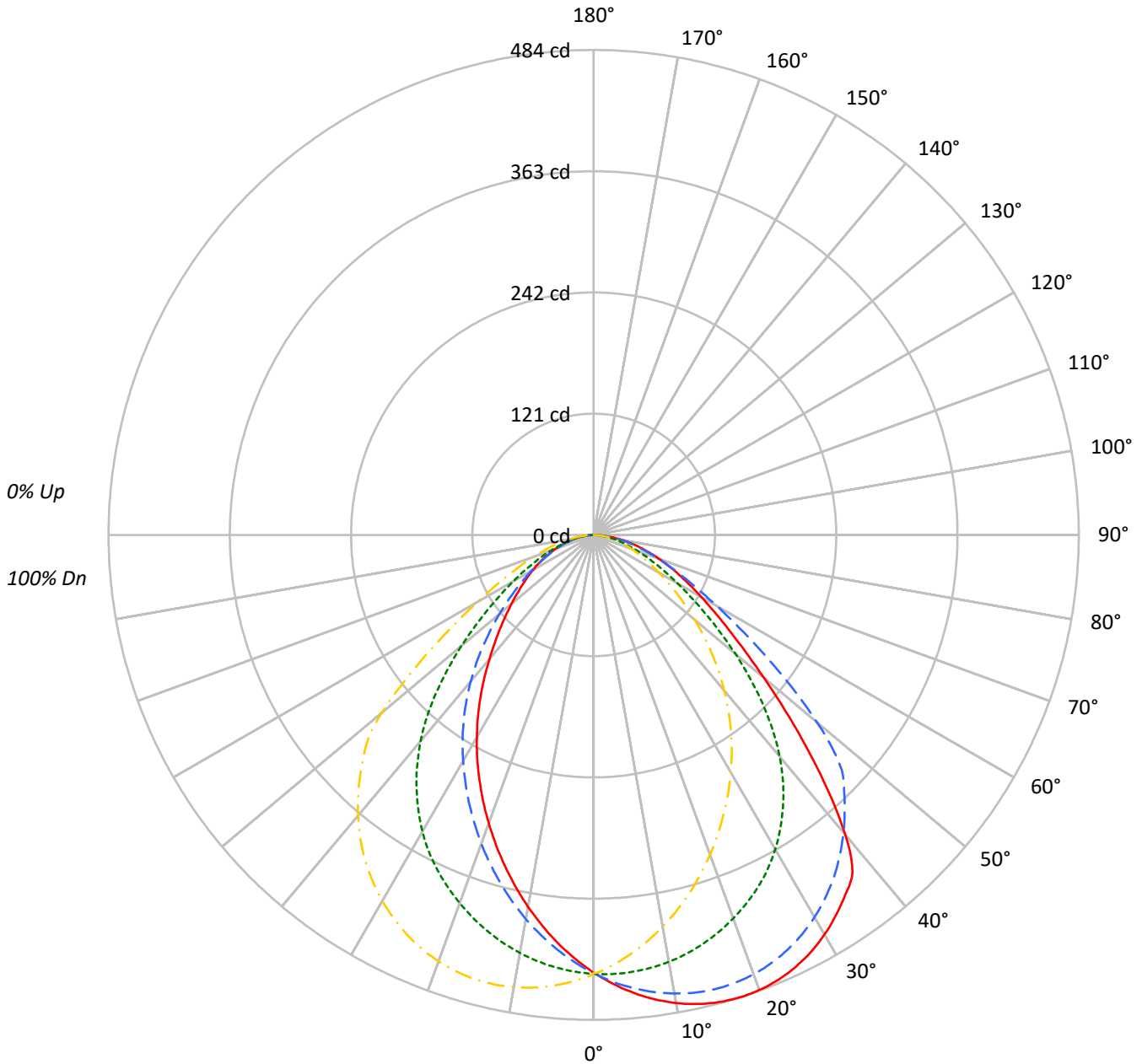
Input Watts (W): 10  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20									20									20									20									
RC	80									50									30									10									0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0																
RCR																																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100																			
1	110	106	102	99	108	104	101	98	100	97	94	96	94	92	92	91	89	87																			
2	102	94	88	83	99	92	87	82	89	84	80	86	82	79	83	80	77	75																			
3	94	84	77	71	91	83	76	70	80	74	69	77	72	68	75	70	67	65																			
4	86	75	68	61	84	74	67	61	72	65	60	70	64	59	67	63	59	57																			
5	80	68	60	54	78	67	59	54	65	58	53	63	57	52	61	56	52	50																			
6	74	62	54	48	72	61	53	47	59	52	47	58	51	47	56	51	46	44																			
7	69	56	48	43	67	56	48	42	54	47	42	53	46	42	51	46	42	40																			
8	64	52	44	38	63	51	43	38	50	43	38	49	42	38	47	42	38	36																			
9	60	48	40	35	59	47	40	35	46	39	34	45	39	34	44	38	34	32																			
10	57	44	37	32	55	44	36	32	43	36	31	42	36	31	41	35	31	30																			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°	270°
0°	10491	10491	10491	10491
5°	11043	10538	9845	10430
10°	11551	10533	9174	10314
15°	11983	10483	8490	10163
20°	12333	10393	7811	9977
25°	12596	10260	7136	9760
30°	12750	10031	6454	9461
35°	12821	9648	5755	9022
40°	12226	9027	5058	8408
45°	10214	8088	4469	7518
50°	8285	6886	3992	6413
55°	6864	5648	3625	5326
60°	5947	4633	3352	4441
65°	5328	3870	3087	3745
70°	4851	3267	2797	3169
75°	4410	2742	2538	2677
80°	3963	2265	2223	2196
85°	3219	1761	1431	1623

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 11974 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	41.3	4.3
10°-20°	116.7	12.2
20°-30°	172.6	18.1
30°-40°	198.9	20.9
40°-50°	181.1	19.0
50°-60°	124.0	13.0
60°-70°	72.8	7.6
70°-80°	36.7	3.9
80°-90°	9.2	1.0
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	330.6	34.7
0°-40°	529.5	55.5
0°-60°	834.7	87.5
0°-90°	953.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	953.4	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	438	438	438	438	438	
5°	459	438	409	433	459	44
15°	483	422	342	409	483	137
25°	476	388	270	369	476	219
35°	438	330	197	308	438	272
45°	301	238	132	222	301	233
55°	164	135	87	127	164	149
65°	94	68	54	66	94	94
75°	48	30	27	29	48	51
85°	12	6	5	6	12	14
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	437.5	437.5	437.5	437.5	437.5	437.5	437.5	437.5	437.5	437.5	437.5
0.5°	439.2	439.3	439.3	438.8	438.3	437.5	436.9	434.3	434.2	434.4	435.4
1°	441.7	441.6	441.1	440.0	438.4	436.7	435.3	432.0	431.5	432.0	433.4
1.5°	444.0	443.9	442.8	440.9	438.6	435.8	433.6	429.6	429.0	429.4	431.3
2°	446.3	446.1	444.7	442.0	438.6	434.9	431.8	427.2	426.2	426.8	429.2
2.5°	448.6	448.3	446.4	442.9	438.6	433.9	429.9	424.7	423.4	424.2	427.1
3°	450.7	450.3	448.1	443.9	438.6	432.9	428.1	422.1	420.7	421.5	424.8
3.5°	452.9	452.3	449.7	444.8	438.5	431.9	426.2	419.5	417.8	418.8	422.6
4°	455.0	454.4	451.2	445.5	438.4	430.7	424.2	416.9	414.9	416.0	420.3
4.5°	456.9	456.3	452.5	446.3	438.2	429.6	422.3	414.3	411.9	413.1	417.9
5°	458.8	458.1	454.0	447.0	437.8	428.4	420.1	411.4	409.0	410.2	415.5
5.5°	460.7	459.9	455.4	447.6	437.5	427.2	418.0	408.7	405.9	407.4	413.0
6°	462.6	461.6	456.7	448.2	437.2	425.8	415.9	405.9	402.8	404.4	410.6
6.5°	464.3	463.2	457.9	448.7	436.8	424.5	413.6	403.1	399.8	401.4	408.1
7°	466.0	464.9	459.0	449.1	436.3	423.0	411.4	400.1	396.5	398.3	405.4
7.5°	467.6	466.4	460.2	449.7	435.8	421.6	409.1	397.1	393.4	395.3	402.9
8°	469.1	467.9	461.3	450.0	435.3	420.1	406.7	394.1	390.1	392.1	400.2
8.5°	470.4	469.3	462.2	450.3	434.7	418.5	404.3	391.2	386.8	389.0	397.6
9°	471.8	470.5	463.1	450.5	434.1	417.1	401.9	388.2	383.5	385.7	394.8
9.5°	473.2	471.8	464.0	450.7	433.4	415.4	399.5	385.1	380.2	382.6	392.1
10°	474.4	473.0	464.8	450.8	432.6	413.6	396.9	381.9	376.8	379.3	389.4
10.5°	475.6	474.1	465.5	450.9	431.8	411.9	394.4	378.8	373.5	376.0	386.5
11°	476.7	475.1	466.2	450.9	430.9	410.1	391.7	375.6	370.1	372.8	383.6
11.5°	477.7	476.1	466.8	450.9	430.1	408.3	389.1	372.4	366.7	369.4	380.6
12°	478.6	476.9	467.4	450.8	429.1	406.5	386.5	369.2	363.1	366.1	377.7
12.5°	479.5	477.8	467.8	450.7	428.1	404.6	383.8	365.9	359.7	362.8	374.9
13°	480.4	478.5	468.2	450.5	427.1	402.7	381.0	362.6	356.2	359.3	371.9
13.5°	481.0	479.2	468.5	450.2	425.9	400.6	378.3	359.3	352.7	355.9	368.9
14°	481.6	479.8	468.8	449.9	424.7	398.6	375.4	355.9	349.2	352.5	365.8
14.5°	482.3	480.4	469.1	449.6	423.6	396.6	372.6	352.6	345.7	349.1	362.7
15°	482.7	480.8	469.2	449.1	422.3	394.4	369.7	349.1	342.0	345.6	359.6
15.5°	483.1	481.2	469.3	448.6	421.0	392.2	366.9	345.8	338.5	342.1	356.5
16°	483.4	481.5	469.2	448.1	419.6	390.0	363.9	342.4	334.9	338.6	353.4
16.5°	483.8	481.7	469.1	447.4	418.3	387.8	360.9	339.0	331.4	335.2	350.4
17°	483.9	481.8	468.9	446.8	416.8	385.5	357.9	335.4	327.8	331.6	347.0
17.5°	484.0	481.8	468.7	446.0	415.4	383.2	354.8	332.0	324.1	328.2	344.0
18°	484.1	481.9	468.4	445.3	413.9	380.8	351.8	328.6	320.5	324.5	340.8
18.5°	484.0	481.8	468.1	444.4	412.3	378.5	348.8	325.1	316.9	321.1	337.5
19°	483.9	481.6	467.7	443.5	410.6	376.0	345.7	321.6	313.3	317.5	334.3
19.5°	483.7	481.4	467.1	442.5	409.0	373.6	342.6	318.2	309.8	314.0	331.1
20°	483.3	481.1	466.6	441.6	407.3	371.1	339.5	314.7	306.1	310.4	327.7
20.5°	483.0	480.8	466.0	440.5	405.5	368.6	336.3	311.1	302.4	306.8	324.4
21°	482.5	480.2	465.2	439.4	403.7	366.1	333.1	307.5	298.8	303.3	321.2



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CATALOG NUMBER: HCDJBL510CSD-HCD8TSQH-HCD8TSQLWW-1000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
22.5°	480.7	478.3	462.7	435.7	398.2	358.2	323.4	297.1	287.9	292.6	311.1
23°	479.9	477.6	461.7	434.3	396.2	355.6	320.2	293.5	284.3	289.0	307.8
23.5°	479.1	476.7	460.6	432.9	394.1	352.9	317.0	289.8	280.7	285.5	304.5
24°	478.1	475.8	459.6	431.5	392.1	350.1	313.7	286.3	277.0	281.8	301.1
24.5°	477.2	474.7	458.3	430.1	390.0	347.4	310.4	282.8	273.3	278.3	297.7
25°	476.1	473.6	457.0	428.5	387.8	344.6	307.1	279.3	269.7	274.7	294.4
25.5°	474.8	472.5	455.6	426.8	385.5	341.6	303.8	275.8	266.2	271.1	291.1
26°	473.5	471.2	454.4	425.2	383.3	338.7	300.5	272.1	262.4	267.6	287.6
26.5°	472.3	469.8	452.9	423.3	380.9	335.9	297.2	268.5	258.7	263.9	284.3
27°	470.9	468.4	451.3	421.6	378.5	332.9	293.8	264.9	255.1	260.4	280.9
27.5°	469.4	466.9	449.7	419.7	375.9	329.9	290.5	261.4	251.6	256.7	277.5
28°	467.7	465.3	448.0	417.7	373.4	326.8	287.1	257.9	247.8	253.2	274.1
28.5°	466.1	463.6	446.3	415.7	370.7	323.7	283.8	254.2	244.1	249.6	270.8
29°	464.3	461.8	444.4	413.6	368.0	320.5	280.3	250.6	240.5	245.9	267.2
29.5°	462.4	460.0	442.6	411.5	365.2	317.4	276.9	247.1	236.9	242.3	263.8
30°	460.5	458.2	440.6	409.3	362.3	314.1	273.5	243.4	233.1	238.7	260.4
30.5°	458.6	456.2	438.6	406.9	359.3	310.8	270.2	239.9	229.4	235.1	257.0
31°	456.5	454.1	436.6	404.5	356.3	307.4	266.7	236.1	225.8	231.5	253.6
31.5°	454.4	452.0	434.4	402.0	353.2	304.1	263.2	232.6	222.2	227.9	250.2
32°	452.2	449.9	432.2	399.4	350.0	300.7	259.8	229.0	218.5	224.3	246.8
32.5°	449.9	447.5	429.8	396.7	346.7	297.1	256.3	225.4	214.8	220.7	243.4
33°	447.6	445.3	427.5	394.0	343.4	293.6	252.9	221.6	211.3	217.1	240.0
33.5°	445.3	442.8	425.0	391.2	340.1	290.0	249.3	218.2	207.6	213.5	236.6
34°	442.8	440.5	422.7	388.3	336.6	286.5	245.8	214.5	203.8	209.9	232.9
34.5°	440.4	437.9	420.0	385.3	333.1	282.9	242.3	210.9	200.2	206.3	229.5
35°	438.0	435.4	417.5	382.2	329.6	279.3	238.8	207.2	196.6	202.8	226.1
35.5°	435.7	432.8	414.7	378.9	325.8	275.6	235.2	203.7	193.0	199.2	222.6
36°	433.5	430.2	412.0	375.7	322.1	272.0	231.7	200.1	189.3	195.5	219.1
36.5°	430.9	427.6	409.3	372.3	318.2	268.3	228.1	196.4	185.7	191.9	215.6
37°	427.9	425.0	406.3	368.9	314.3	264.5	224.5	192.8	182.2	188.3	212.0
37.5°	424.2	422.5	403.4	365.5	310.3	260.6	220.8	189.2	178.7	184.8	208.5
38°	418.8	420.0	400.3	361.9	306.0	256.9	217.3	185.6	175.2	181.3	205.0
38.5°	413.1	417.2	397.2	358.1	301.9	253.1	213.6	182.0	171.8	177.6	201.5
39°	406.3	414.0	394.1	354.2	297.5	249.2	210.0	178.5	168.4	174.2	198.0
39.5°	398.7	409.4	391.0	350.4	293.1	245.3	206.4	175.0	164.9	170.7	194.4
40°	390.6	404.4	387.6	346.3	288.4	241.3	202.8	171.4	161.6	167.3	190.8
40.5°	381.8	398.0	384.5	342.0	283.9	237.5	199.2	167.9	158.4	163.9	187.3
41°	373.4	391.4	381.0	337.6	279.2	233.5	195.4	164.6	155.3	160.7	183.7
41.5°	364.2	383.1	377.6	333.1	274.4	229.5	191.8	161.2	152.2	157.3	180.1
42°	355.5	375.5	374.1	328.3	269.5	225.5	188.2	157.9	149.1	154.1	176.6
42.5°	346.3	366.8	370.6	323.4	264.5	221.5	184.6	154.6	146.1	150.9	173.0
43°	337.2	358.7	367.2	318.3	259.5	217.5	180.9	151.4	143.1	147.8	169.5
43.5°	328.0	349.6	363.6	313.4	254.3	213.3	177.3	148.1	140.1	144.6	165.9



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
45°	301.2	323.3	353.1	296.6	238.5	201.2	166.4	138.9	131.8	135.8	155.5
45.5°	292.0	314.2	349.6	291.0	233.1	197.0	162.8	136.0	129.0	132.9	152.1
46°	283.9	305.7	345.6	285.1	227.8	193.0	159.2	133.0	126.5	130.0	148.5
46.5°	274.8	296.5	341.4	279.1	222.4	188.8	155.7	130.1	123.8	127.2	145.1
47°	267.2	288.4	335.4	272.9	216.9	184.8	152.1	127.3	121.3	124.6	141.8
47.5°	258.3	279.5	329.8	266.5	211.4	180.6	148.5	124.7	118.8	121.9	138.5
48°	251.3	271.7	322.5	260.0	206.2	176.6	145.0	121.8	116.4	119.3	135.3
48.5°	242.8	262.8	315.7	253.5	200.6	172.5	141.5	119.1	113.9	116.8	132.0
49°	236.2	255.5	307.5	247.0	195.2	168.5	138.1	116.6	111.6	114.2	128.8
49.5°	228.2	247.1	299.8	240.4	189.9	164.4	134.7	114.0	109.3	111.8	125.7
50°	222.1	240.2	291.1	233.8	184.6	160.4	131.3	111.5	107.0	109.3	122.6
50.5°	214.6	232.4	282.7	227.0	179.0	156.3	128.0	109.0	104.7	107.0	119.6
51°	208.8	225.5	274.0	220.1	173.9	152.4	124.8	106.6	102.7	104.7	116.6
51.5°	201.9	218.2	265.5	213.4	168.7	148.5	121.6	104.1	100.6	102.4	113.7
52°	196.4	211.8	256.6	206.8	163.6	144.6	118.4	101.9	98.5	100.2	110.8
52.5°	190.2	205.2	248.4	200.2	158.4	140.7	115.3	99.5	96.3	98.0	107.9
53°	185.0	198.9	239.7	193.5	153.7	136.8	112.3	97.3	94.3	95.8	105.2
53.5°	179.2	192.8	231.7	186.9	148.8	133.1	109.3	95.0	92.4	93.8	102.4
54°	174.1	186.7	223.2	180.4	144.1	129.4	106.3	93.0	90.5	91.7	99.8
54.5°	169.0	181.1	215.3	174.1	139.4	125.6	103.5	91.0	88.7	89.8	97.2
55°	164.2	175.3	207.7	167.8	135.1	122.0	100.7	88.9	86.7	87.8	94.6
55.5°	159.6	170.7	199.9	161.9	130.6	118.4	97.9	86.8	84.9	85.9	92.1
56°	154.9	164.8	192.8	156.0	126.4	114.9	95.2	84.8	83.0	84.0	89.7
56.5°	150.9	160.7	185.4	150.3	122.2	111.5	92.6	82.8	81.4	82.0	87.4
57°	146.2	155.3	178.8	144.8	118.3	108.0	90.0	81.1	79.7	80.2	85.0
57.5°	142.7	151.4	171.8	139.6	114.3	104.7	87.6	79.3	78.0	78.4	82.7
58°	138.3	146.4	165.5	134.4	110.6	101.5	85.0	77.5	76.3	76.6	80.3
58.5°	135.1	142.5	159.3	129.6	107.0	98.4	82.6	75.7	74.6	74.9	78.1
59°	130.8	138.1	153.2	124.9	103.4	95.3	80.0	73.8	73.0	73.2	75.9
59.5°	128.0	134.3	147.7	120.4	99.9	92.4	77.7	72.1	71.4	71.5	73.7
60°	124.0	130.2	141.9	116.0	96.6	89.5	75.3	70.4	69.9	69.9	71.6
60.5°	120.8	126.2	137.0	111.9	93.3	86.6	73.2	68.7	68.3	68.3	69.6
61°	117.4	122.8	131.5	107.8	90.4	83.8	71.0	67.0	66.8	66.7	67.6
61.5°	114.2	118.7	127.0	104.1	87.4	80.9	68.7	65.4	65.3	65.2	65.6
62°	111.1	115.6	122.2	100.5	84.3	78.1	66.7	63.9	63.8	63.6	63.6
62.5°	108.0	112.0	117.5	97.0	81.3	75.5	64.7	62.3	62.2	62.1	61.8
63°	105.1	108.8	113.5	93.6	78.6	72.9	62.7	60.8	60.6	60.6	60.0
63.5°	102.2	105.5	109.2	90.4	75.9	70.4	60.6	59.4	59.1	59.1	58.2
64°	99.4	102.2	105.4	87.1	73.3	68.0	58.7	57.9	57.5	57.6	56.5
64.5°	96.5	99.3	101.5	84.1	70.8	65.6	56.9	56.4	55.9	56.0	54.8
65°	93.9	96.2	97.7	81.2	68.2	63.3	55.1	54.9	54.4	54.6	53.1
65.5°	91.2	93.4	94.4	78.3	65.7	61.1	53.4	53.3	53.0	53.1	51.5
66°	88.5	90.6	90.9	75.5	63.4	58.8	51.7	51.8	51.5	51.7	49.9





TEST NUMBER: P775904

CATALOG NUMBER: HCDJBL510CSD-HCD8TSQH-HCD8TSQLWW-1000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	81.0	82.3	81.4	67.8	56.7	52.4	46.8	47.5	47.1	47.4	45.4
68°	78.6	79.7	78.4	65.4	54.6	50.5	45.3	46.1	45.6	46.0	44.0
68.5°	76.2	77.1	75.7	63.1	52.5	48.6	43.8	44.9	44.2	44.6	42.5
69°	73.8	74.7	72.8	60.7	50.5	46.7	42.3	43.5	42.7	43.3	41.1
69.5°	71.6	72.2	70.1	58.5	48.5	44.8	40.9	42.1	41.3	42.0	39.9
70°	69.2	69.8	67.6	56.3	46.6	42.9	39.5	40.8	39.9	40.6	38.5
70.5°	66.9	67.3	65.0	54.1	44.6	41.2	38.3	39.5	38.6	39.3	37.2
71°	64.7	65.0	62.5	52.1	42.8	39.6	36.9	38.1	37.1	37.9	35.9
71.5°	62.4	62.8	60.1	50.1	41.0	37.9	35.6	36.9	35.8	36.5	34.6
72°	60.3	60.5	57.8	48.1	39.3	36.2	34.3	35.5	34.5	35.3	33.5
72.5°	58.2	58.3	55.5	46.0	37.6	34.7	33.0	34.2	33.4	34.0	32.3
73°	56.0	56.2	53.3	44.2	35.9	33.1	31.9	32.9	32.2	32.8	31.1
73.5°	53.8	53.9	51.0	42.3	34.3	31.6	30.7	31.8	30.9	31.5	29.9
74°	51.8	51.8	48.9	40.5	32.7	30.2	29.5	30.6	29.7	30.4	28.8
74.5°	49.8	49.7	46.8	38.7	31.2	28.8	28.3	29.3	28.6	29.1	27.6
75°	47.6	47.6	44.8	37.1	29.6	27.4	27.3	28.2	27.4	27.9	26.4
75.5°	45.7	45.6	42.7	35.4	28.1	26.0	26.1	27.0	26.2	26.7	25.4
76°	43.7	43.6	40.8	33.8	26.7	24.7	25.0	25.8	25.0	25.6	24.2
76.5°	41.7	41.6	38.9	32.1	25.4	23.4	24.0	24.6	24.0	24.4	23.0
77°	39.7	39.6	37.1	30.5	24.0	22.2	22.9	23.4	22.8	23.2	22.1
77.5°	37.9	37.7	35.3	28.9	22.6	21.0	21.7	22.3	21.7	22.1	20.9
78°	36.1	35.9	33.5	27.3	21.3	19.8	20.7	21.1	20.6	20.9	19.8
78.5°	34.2	34.1	31.6	25.8	20.0	18.6	19.6	20.0	19.5	19.8	18.8
79°	32.4	32.2	29.8	24.3	18.9	17.6	18.6	18.9	18.3	18.6	17.7
79.5°	30.5	30.4	28.0	22.8	17.6	16.5	17.6	17.7	17.3	17.6	16.6
80°	28.7	28.6	26.3	21.4	16.4	15.5	16.5	16.5	16.1	16.5	15.6
80.5°	26.9	26.7	24.6	19.9	15.2	14.5	15.6	15.3	15.0	15.3	14.5
81°	25.1	25.0	23.0	18.6	14.2	13.5	14.5	14.2	14.0	14.3	13.5
81.5°	23.3	23.2	21.4	17.3	13.1	12.6	13.4	13.0	12.8	13.1	12.5
82°	21.6	21.6	19.8	16.0	12.0	11.6	12.4	11.9	11.7	12.0	11.5
82.5°	19.9	19.9	18.2	14.7	11.0	10.8	11.4	10.8	10.7	11.0	10.4
83°	18.2	18.2	16.7	13.4	10.1	9.9	10.3	9.7	9.5	9.8	9.5
83.5°	16.5	16.6	15.1	12.1	9.2	9.1	9.4	8.5	8.4	8.7	8.5
84°	14.9	15.0	13.6	11.1	8.2	8.2	8.4	7.5	7.4	7.7	7.6
84.5°	13.3	13.4	12.3	9.9	7.2	7.4	7.6	6.4	6.3	6.6	6.7
85°	11.7	11.8	10.9	8.8	6.4	6.5	6.6	5.2	5.2	5.4	5.8
85.5°	10.1	10.2	9.6	7.7	5.4	5.6	5.6	4.3	4.2	4.5	4.9
86°	8.5	8.7	8.3	6.7	4.6	4.9	4.8	3.4	3.3	3.5	4.0
86.5°	6.9	7.2	7.1	5.6	3.8	4.0	3.9	2.7	2.6	2.8	3.2
87°	5.4	5.9	5.9	4.7	3.1	3.2	3.1	1.9	1.9	2.1	2.5
87.5°	4.4	4.7	4.7	3.6	2.3	2.5	2.3	1.3	1.3	1.4	1.6
88°	3.5	3.6	3.6	2.8	1.6	1.7	1.5	0.6	0.6	0.7	0.9
88.5°	2.7	2.8	2.8	1.9	1.0	0.9	0.7	0.2	0.2	0.2	0.2



TEST NUMBER: P775904

CATALOG NUMBER: HCDJBL510CSD-HCD8TSQH-HCD8TSQLWW-1000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
90°	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TEST NUMBER: P775904

CATALOG NUMBER: HCDJBL510CSD-HCD8TSQH-HCD8TSQLWW-1000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	437.5	437.5	437.5	437.5	437.5	437.5
0.5°	436.4	437.8	438.9	440.1	438.8	439.2
1°	435.2	437.5	439.5	441.6	440.9	441.7
1.5°	433.9	437.1	440.2	442.9	442.9	444.0
2°	432.5	436.8	440.7	444.3	445.0	446.3
2.5°	431.1	436.2	441.2	445.7	447.0	448.6
3°	429.6	435.8	441.7	446.9	449.0	450.7
3.5°	428.1	435.2	442.0	448.2	450.8	452.9
4°	426.6	434.6	442.3	449.3	452.6	455.0
4.5°	425.0	434.0	442.6	450.4	454.4	456.9
5°	423.3	433.3	442.8	451.4	456.1	458.8
5.5°	421.7	432.5	443.1	452.3	457.5	460.7
6°	420.0	431.8	443.2	453.3	459.1	462.6
6.5°	418.2	430.9	443.2	454.1	460.6	464.3
7°	416.4	429.9	443.2	455.0	462.0	466.0
7.5°	414.5	429.1	443.2	455.6	463.4	467.6
8°	412.6	428.0	443.1	456.3	464.7	469.1
8.5°	410.7	427.1	442.9	456.9	465.9	470.4
9°	408.7	425.9	442.6	457.4	467.0	471.8
9.5°	406.7	424.8	442.4	457.9	468.1	473.2
10°	404.6	423.6	442.1	458.3	469.1	474.4
10.5°	402.6	422.4	441.8	458.6	470.0	475.6
11°	400.4	421.1	441.4	458.9	470.9	476.7
11.5°	398.2	419.8	440.8	459.1	471.6	477.7
12°	396.0	418.4	440.3	459.4	472.4	478.6
12.5°	393.7	417.1	439.8	459.5	473.0	479.5
13°	391.5	415.6	439.0	459.5	473.5	480.4
13.5°	389.1	414.1	438.4	459.4	474.1	481.0
14°	386.8	412.6	437.6	459.3	474.5	481.6
14.5°	384.3	411.0	436.8	459.1	474.8	482.3
15°	381.9	409.4	435.9	458.8	475.0	482.7
15.5°	379.4	407.7	435.0	458.5	475.2	483.1
16°	377.0	406.0	434.0	458.2	475.4	483.4
16.5°	374.4	404.3	433.0	457.8	475.4	483.8
17°	371.9	402.5	432.0	457.2	475.4	483.9
17.5°	369.2	400.6	430.8	456.7	475.3	484.0
18°	366.7	398.7	429.6	456.1	475.1	484.1
18.5°	364.0	396.8	428.5	455.3	474.9	484.0
19°	361.3	394.9	427.2	454.6	474.6	483.9
19.5°	358.7	393.0	425.8	453.7	474.2	483.7
20°	355.9	391.0	424.5	452.9	473.6	483.3
20.5°	353.1	388.9	423.0	451.9	473.1	483.0
21°	350.4	386.8	421.5	450.7	472.5	482.5

TEST NUMBER: P775904

CATALOG NUMBER: HCDJBL510CSD-HCD8TSQH-HCD8TSQLWW-1000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
22.5°	341.9	380.4	416.8	447.3	470.1	480.7
23°	339.1	378.2	415.2	446.0	469.2	479.9
23.5°	336.2	375.9	413.5	444.7	468.2	479.1
24°	333.3	373.7	411.8	443.3	467.1	478.1
24.5°	330.3	371.3	410.0	441.8	466.0	477.2
25°	327.4	368.9	408.2	440.3	464.7	476.1
25.5°	324.5	366.4	406.3	438.7	463.3	474.8
26°	321.5	364.0	404.4	437.0	462.0	473.5
26.5°	318.4	361.4	402.4	435.3	460.5	472.3
27°	315.4	358.9	400.3	433.5	458.9	470.9
27.5°	312.3	356.2	398.2	431.7	457.3	469.4
28°	309.2	353.4	396.0	429.7	455.6	467.7
28.5°	305.9	350.7	393.7	427.8	453.8	466.1
29°	302.8	347.8	391.4	425.8	452.0	464.3
29.5°	299.5	344.8	389.0	423.8	450.0	462.4
30°	296.2	341.7	386.5	421.6	448.1	460.5
30.5°	292.9	338.6	383.8	419.5	446.0	458.6
31°	289.5	335.5	381.3	417.2	443.9	456.5
31.5°	286.2	332.2	378.5	414.9	441.7	454.4
32°	282.8	328.9	375.6	412.6	439.4	452.2
32.5°	279.3	325.6	372.6	410.1	437.1	449.9
33°	275.9	322.2	369.6	407.7	434.6	447.6
33.5°	272.2	318.8	366.5	405.0	432.2	445.3
34°	268.6	315.2	363.4	402.5	429.7	442.8
34.5°	265.1	311.8	360.0	399.8	427.2	440.4
35°	261.7	308.2	356.7	397.0	424.5	438.0
35.5°	258.0	304.5	353.3	394.3	421.9	435.7
36°	254.3	300.7	349.9	391.4	419.2	433.5
36.5°	250.7	297.0	346.3	388.4	416.4	430.9
37°	247.2	293.1	342.7	385.3	413.6	427.9
37.5°	243.5	289.2	339.0	382.2	410.9	424.2
38°	239.9	285.1	335.1	379.0	408.2	418.8
38.5°	236.1	281.1	331.2	375.7	405.5	413.1
39°	232.6	277.0	327.2	372.4	403.0	406.3
39.5°	228.7	273.0	323.0	369.0	399.9	398.7
40°	225.0	268.6	318.8	365.5	396.7	390.6
40.5°	221.3	264.3	314.4	362.0	391.7	381.8
41°	217.6	259.9	309.9	358.5	386.8	373.4
41.5°	213.9	255.4	305.2	354.7	380.4	364.2
42°	210.1	250.8	300.5	351.0	373.8	355.5
42.5°	206.4	246.1	295.6	347.3	366.0	346.3
43°	202.7	241.3	290.5	343.5	358.8	337.2
43.5°	198.8	236.6	285.1	339.6	350.5	328.0



TEST NUMBER: P775904

CATALOG NUMBER: HCDJBL510CSD-HCD8TSQH-HCD8TSQLWW-1000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
45°	187.4	221.7	268.2	327.6	326.1	301.2
45.5°	183.5	216.6	262.3	323.4	317.5	292.0
46°	179.7	211.7	256.2	319.5	309.3	283.9
46.5°	175.8	206.7	250.1	315.2	300.9	274.8
47°	172.0	201.6	243.8	311.1	292.8	267.2
47.5°	168.3	196.6	237.6	306.6	284.3	258.3
48°	164.3	191.6	231.3	301.9	276.4	251.3
48.5°	160.6	186.6	224.9	296.6	268.2	242.8
49°	156.7	181.7	218.7	289.9	260.6	236.2
49.5°	153.0	176.9	212.5	283.5	252.7	228.2
50°	149.3	171.9	206.2	276.0	245.6	222.1
50.5°	145.4	167.1	199.9	268.3	237.8	214.6
51°	141.8	162.3	193.6	260.3	230.8	208.8
51.5°	138.1	157.7	187.5	252.0	223.8	201.9
52°	134.5	153.0	181.6	243.6	217.3	196.4
52.5°	130.8	148.5	175.7	235.7	210.3	190.2
53°	127.2	144.2	169.7	227.5	203.7	185.0
53.5°	123.8	139.9	164.1	219.5	197.8	179.2
54°	120.3	135.5	158.7	211.5	191.5	174.1
54.5°	116.9	131.5	153.3	203.9	185.8	169.0
55°	113.5	127.4	148.2	196.6	179.5	164.2
55.5°	110.2	123.6	143.1	189.1	174.5	159.6
56°	106.9	119.8	138.2	182.2	168.6	154.9
56.5°	103.8	116.0	133.6	175.3	164.0	150.9
57°	100.6	112.3	129.0	168.8	158.2	146.2
57.5°	97.5	108.8	124.7	162.4	154.0	142.7
58°	94.5	105.4	120.4	156.3	148.8	138.3
58.5°	91.7	102.1	116.5	150.5	144.6	135.1
59°	89.0	98.9	112.6	144.6	140.0	130.8
59.5°	86.2	95.7	108.9	139.5	135.8	128.0
60°	83.4	92.6	105.2	134.2	131.7	124.0
60.5°	80.6	89.5	101.8	129.1	127.7	120.8
61°	77.9	86.6	98.4	124.2	124.0	117.4
61.5°	75.4	83.9	95.2	119.7	120.0	114.2
62°	72.9	81.1	92.1	115.3	116.8	111.1
62.5°	70.4	78.3	89.1	111.1	113.1	108.0
63°	68.0	75.8	86.0	107.1	109.8	105.1
63.5°	65.7	73.2	83.2	103.3	106.4	102.2
64°	63.5	70.6	80.4	99.3	103.0	99.4
64.5°	61.3	68.2	77.8	95.9	100.1	96.5
65°	59.0	66.0	75.1	92.4	96.9	93.9
65.5°	56.9	63.5	72.6	89.2	94.1	91.2
66°	54.9	61.3	70.1	85.9	91.1	88.5



TEST NUMBER: P775904

CATALOG NUMBER: HCDJBL510CSD-HCD8TSQH-HCD8TSQLWW-1000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	49.0	54.8	63.1	77.1	82.7	81.0
68°	47.2	52.9	60.7	74.2	80.1	78.6
68.5°	45.4	50.8	58.6	71.6	77.6	76.2
69°	43.7	48.9	56.5	68.9	74.9	73.8
69.5°	41.9	47.0	54.4	66.4	72.5	71.6
70°	40.3	45.2	52.4	63.9	70.0	69.2
70.5°	38.6	43.3	50.4	61.5	67.6	66.9
71°	37.0	41.6	48.4	59.1	65.3	64.7
71.5°	35.5	39.7	46.6	56.8	63.0	62.4
72°	34.0	38.3	44.6	54.6	60.6	60.3
72.5°	32.5	36.7	42.8	52.4	58.4	58.2
73°	31.0	35.1	41.0	50.2	56.2	56.0
73.5°	29.6	33.5	39.2	48.2	54.0	53.8
74°	28.2	31.9	37.6	46.1	51.9	51.8
74.5°	27.0	30.4	36.0	44.0	49.8	49.8
75°	25.7	28.9	34.4	42.1	47.6	47.6
75.5°	24.4	27.4	32.7	40.2	45.6	45.7
76°	23.1	26.0	31.1	37.9	43.7	43.7
76.5°	22.0	24.6	29.5	36.2	41.7	41.7
77°	20.9	23.3	28.0	34.5	39.6	39.7
77.5°	19.8	22.0	26.5	32.8	37.7	37.9
78°	18.6	20.7	25.0	31.0	35.9	36.1
78.5°	17.6	19.5	23.7	29.3	34.1	34.2
79°	16.6	18.2	22.2	27.6	32.3	32.4
79.5°	15.7	17.0	20.8	25.9	30.4	30.5
80°	14.7	15.9	19.4	24.2	28.6	28.7
80.5°	13.7	14.8	18.1	22.6	26.7	26.9
81°	12.8	13.6	16.8	21.0	25.0	25.1
81.5°	11.8	12.6	15.6	19.4	23.3	23.3
82°	11.0	11.6	14.3	17.8	21.5	21.6
82.5°	10.0	10.5	13.1	16.3	19.9	19.9
83°	9.2	9.6	11.9	14.8	18.2	18.2
83.5°	8.3	8.6	10.8	13.3	16.6	16.5
84°	7.5	7.7	9.6	11.9	14.9	14.9
84.5°	6.6	6.8	8.5	10.5	13.3	13.3
85°	5.8	5.9	7.5	9.3	11.8	11.7
85.5°	4.9	5.1	6.4	8.1	10.2	10.1
86°	4.0	4.3	5.4	6.8	8.7	8.5
86.5°	3.3	3.5	4.5	5.6	7.4	6.9
87°	2.5	2.8	3.6	4.6	6.1	5.4
87.5°	1.6	2.0	2.8	3.4	4.9	4.4
88°	0.9	1.3	1.9	2.6	3.8	3.5
88.5°	0.2	0.5	1.1	1.7	2.9	2.7



TEST NUMBER: P775904

CATALOG NUMBER: HCDJBL510CSD-HCD8TSQH-HCD8TSQLWW-1000lm-5000K

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
90°	0.0	0.0	0.0	0.0	0.1	0.1



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— 0°-180°    - - 45°-225°    - - - - 90°-270°    - · - · 135°-315°

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21.5°	481.9	479.7	464.5	438.3	401.9	363.5	329.9	304.0	295.3	299.7	317.9
22°	481.4	479.1	463.6	437.0	400.1	360.9	326.7	300.5	291.5	296.2	314.4



44°	319.0	340.9	360.0	307.9	249.1	209.3	173.7	145.1	137.3	141.6	162.4
44.5°	309.9	331.9	356.5	302.4	243.9	205.2	170.1	141.9	134.5	138.6	159.0



66.5°	86.1	87.7	87.6	72.9	61.2	56.6	50.0	50.4	50.0	50.2	48.4
67°	83.5	85.0	84.5	70.3	58.9	54.6	48.4	49.0	48.5	48.8	46.9



89°	1.8	1.8	1.8	1.1	0.3	0.2	0.2	0.1	0.0	0.1	0.1
89.5°	1.0	1.0	1.0	0.2	0.0	0.0	0.0	0.1	0.0	0.1	0.0



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21.5°	347.6	384.7	420.0	449.7	471.8	481.9
22°	344.8	382.5	418.4	448.6	471.0	481.4



44°	195.0	231.7	279.7	335.6	342.7	319.0
44.5°	191.3	226.7	274.1	331.6	334.2	309.9



66.5°	53.0	59.1	67.7	82.9	88.2	86.1
67°	50.9	57.0	65.3	79.9	85.6	83.5

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89°	0.0	0.1	0.2	0.9	1.9	1.8
89.5°	0.0	0.0	0.0	0.1	1.1	1.0

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(END OF REPORT)